Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTER NUMBER						CANDIDATE NUMBER				

3404985620

MATHEMATICS (US) **0444/11**

Paper 1 (Core) **October/November 2014**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Geometrical instruments

READ THESE INSTRUCTIONS FIRST

Write your Center number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
CALCULATORS MUST NOT BE USED IN THIS PAPER.
All answers should be given in their simplest form.
If work is needed for any question it must be shown in the space provided.

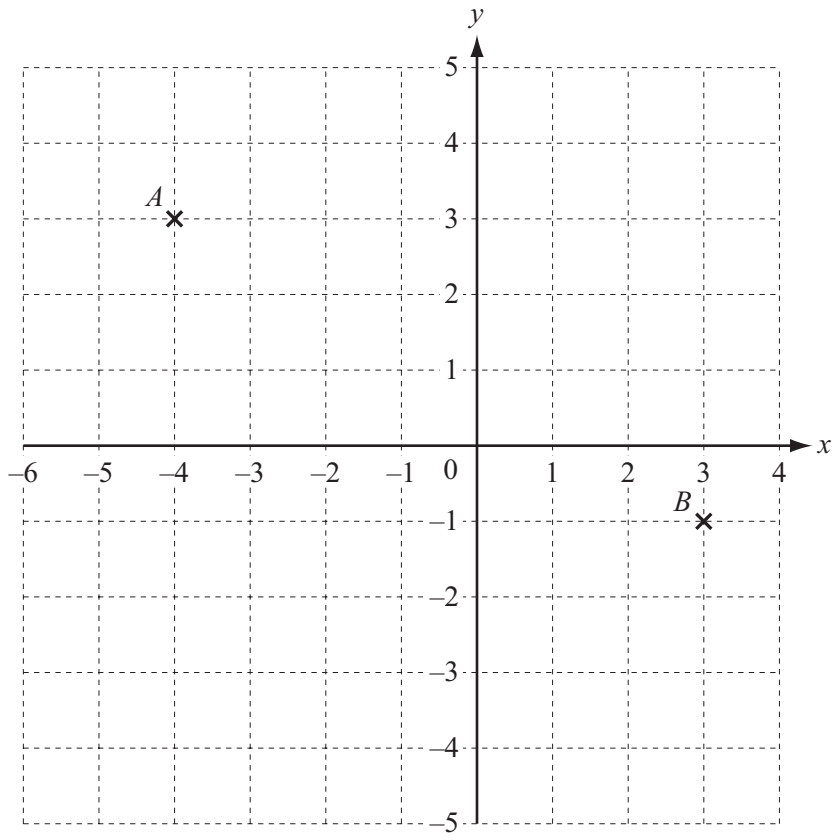
The number of points is given in parentheses [ ] at the end of each question or part question.
The total of the points for this paper is 56.

IB14 11_0444_11/4RP

Formula List

Area, A, of triangle, base b, height h.	$A = \frac{1}{2}bh$
Area, A, of circle, radius r.	$A = \pi r^2$
Circumference, C, of circle, radius r.	$C = 2\pi r$
Lateral surface area, A, of cylinder of radius r, height h.	$A = 2\pi rh$
Surface area, A, of sphere of radius r.	$A = 4\pi r^2$
Volume, V, of prism, cross-sectional area A, length l.	$V = Al$
Volume, V, of cylinder of radius r, height h.	$V = \pi r^2 h$
Volume, V, of sphere of radius r.	$V = \frac{4}{3}\pi r^3$

1



Points A and B are shown on the grid.

Write $\overrightarrow{AB}$ as a column vector.

Answer $\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

---

2 Write 15.0782 correct to

(a) one decimal place,

Answer(a) ..... [1]

(b) the nearest 10.

Answer(b) ..... [1]

3

Z E B R A

Write down the letters in the word above that have

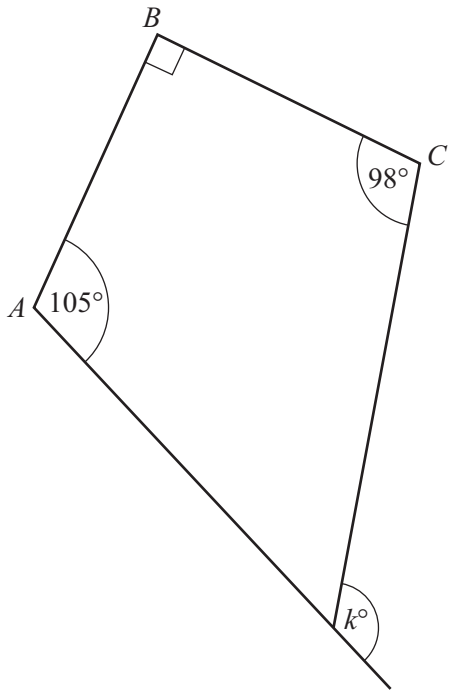
(a) exactly one line of symmetry,

Answer(a) ..... [1]

(b) rotational symmetry of order 2.

Answer(b) ..... [1]

4



NOT TO SCALE

In the diagram, all four lines are straight.
Angle $A = 105°$, angle $B = 90°$ and angle $C = 98°$.

Find the value of k.

Answer $k =$ ..... [2]

---

5 These are the heights, correct to the nearest centimeter, of 12 children.

132 114 151 130 132 145 163 142 153 170 132 125

Find the median height.

Answer ..... cm [2]

---

6 Write the following in order of size, smallest first.

$\frac{3}{2}$ 75% 0.78 $\frac{2}{3}$ 0.096

Answer ..... < ..... < ..... < ..... < ..... [2]
smallest

---

7 Work out $\frac{1}{4} + \frac{1}{6}$.

Give your answer as a fraction in its simplest form.

Answer ..... [2]

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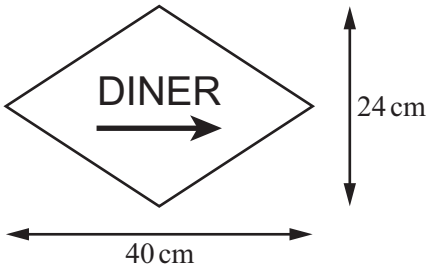
8 Factor completely.

$$8w^2x - 12wy$$

Answer ..... [2]

---

9 The diagram shows an information sign.



NOT TO SCALE

All four sides of this sign are equal in length.

Find the area of this sign.

Answer ..... cm^2 [3]

---

10 Cheryl recorded the midday temperatures in Seoul for one week in January.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Temperature (°C)	–4	–5	–3	–11	–8	–3	–1

(a) Write down the mode.

Answer(a) ..... °C [1]

(b) On how many days was the temperature lower than the mode?

Answer(b) ..... [1]

---

11 Simplify.

$10x - 15 - 6x + 8$

Answer ..... [2]

---

12 **(a)** Write down a 2-digit odd number that is a factor of 182.

Answer(a) ..... [1]

(b) Find all the prime factors of 182.

Answer(b) ..... [2]

---

13 **(a)** Write 2.8×10^2 in standard notation.

Answer(a) ..... [1]

(b) Work out $2.5 \times 10^8 \times 2 \times 10^{-2}$.
Give your answer in scientific notation.

Answer(b) ..... [2]

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14 To hire a bicycle it costs \$6 for each day, plus a fixed charge of \$15.

(a) Maria pays \$39 to hire a bicycle.

How many days does she hire it for?

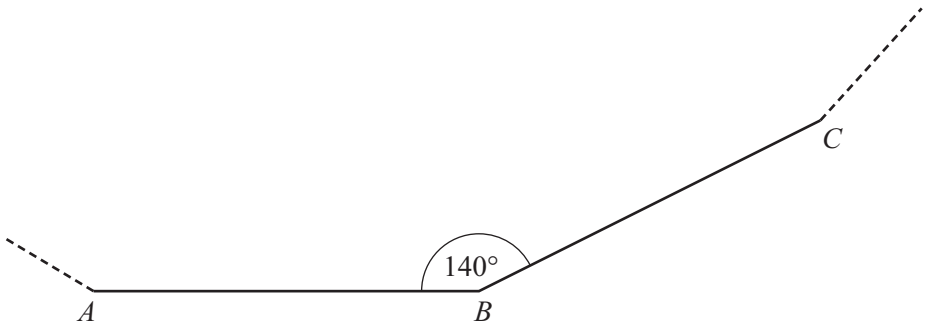
Answer(a) ..... days [2]

(b) The cost, C dollars, of hiring a bicycle for d days is given by the function $C(d)$.

Find $C(d)$ in terms of d.

Answer(b) $C(d)$ = ... [1]

15

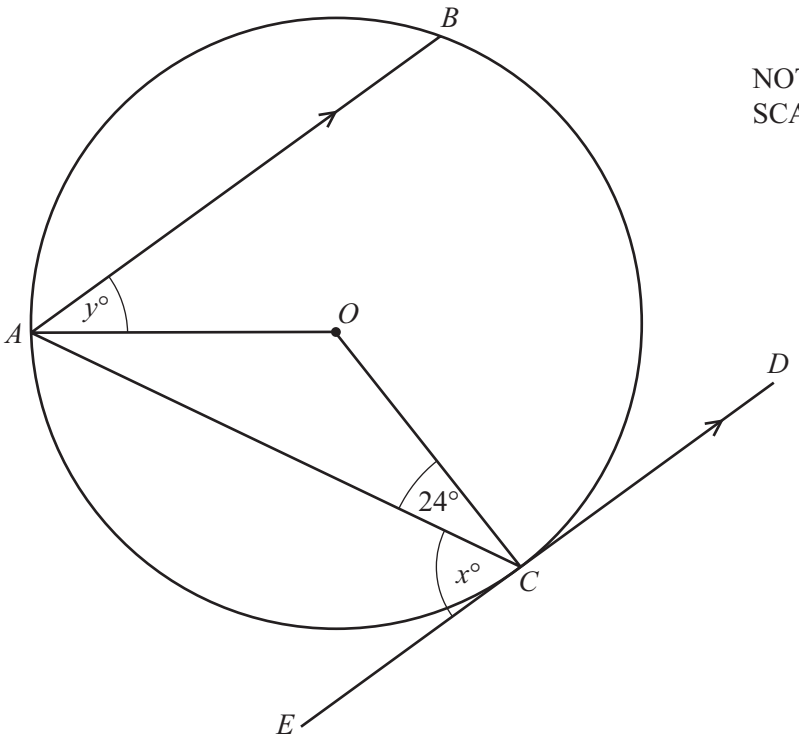


The diagram shows two sides, AB and BC, of a regular polygon.
Angle $ABC = 140°$.

Find the number of sides of this regular polygon.

Answer ..... [3]

16



The diagram shows a circle with center O.
ED is a tangent to the circle at C.
AB is parallel to ED and angle $ACO = 24°$.

Find the value of

(a) x,

Answer(a) $x =$ ..... [1]

(b) y.

Answer(b) $y =$ ..... [2]

17 Dominic invests \$800 at a rate of 5% per year compound interest.

Work out the interest received after 2 years.

Answer \$..... [2]

---

18 On a ship, the price of a gift is 24 euros (€) or \$30.

Work out the difference in the price on a day when the exchange rate is €1 = \$1.30 .
Give your answer in dollars.

Answer \$..... [3]

---

19 **(a)** Find the value of $5x^2$ when $x = -4$.

Answer(a) ..... [2]

(b) Solve for x.

$$y = \frac{x + w}{z}$$

Answer(b) $x =$ ..... [2]

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20 Solve the system of equations.

$$5x + 2y = 16$$
$$3x - 4y = 7$$

Answer $x =$ .....

$y =$ ..... [3]

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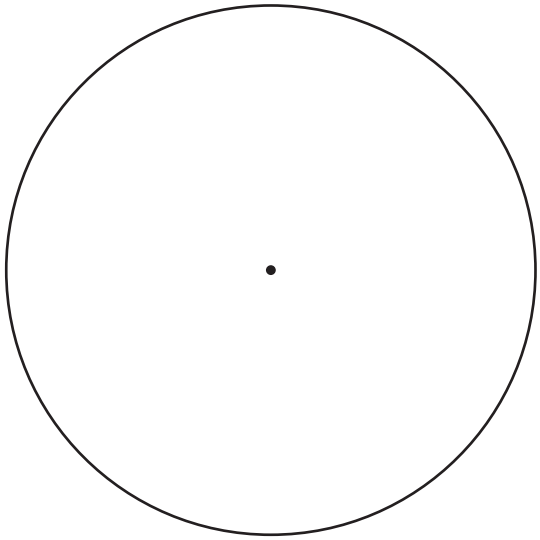
21 (a) In this question use a straight edge and compass only.

Construct an equilateral triangle inscribed in the circle.



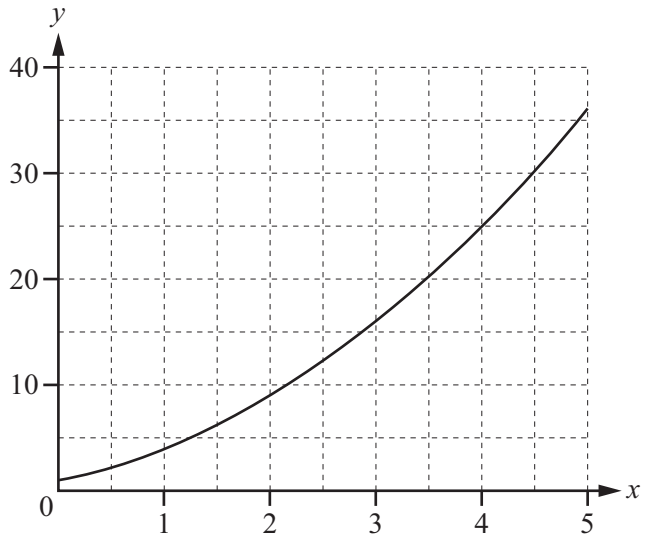
[2]

(b) Write down the size of an interior angle of an equilateral triangle.

Answer(b) ..... [1]

Question 22 is printed on the next page.

22 (a)

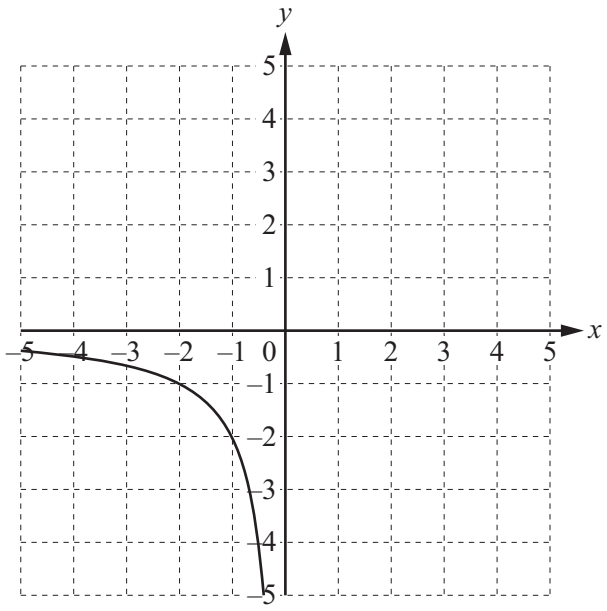


The diagram shows the graph of the function $y = f(x)$ where $f(x) = x^2 + 2x + 1$ for $0 \leqslant x \leqslant 5$.

Write down the range of this function.

Answer(a) ..... [2]

(b)



The diagram shows part of the graph of the function $g(x) = \frac{2}{x}$ for $-5 \leqslant x \leqslant 5$, $x \neq 0$.

Complete the graph of this function. [2]